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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/830,300
Filing Date: July 05, 2001
Appellant(s): BERTHOLD, ACHIM

D. Peter Hochberg
Reg. NO. 24,603
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 25, 2006 appealing from the Office action mailed October 19, 2005.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,151,271	OTSUKA et al	9-1992
6,063,838	PATNODE et al	5-2000
5,023,084	CHIEN et al	6-1991

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A) Claims 33-43 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant specification has support for three polymer-containing layers as evidenced by Figure 1 in the specification. However, the specification and Figure 1 only provides support for a system that has two layers with different glass transition temperatures (Tg) and not three. This is evidenced by Figure 1 and page 10. Thus, the recitation “the glass temperature Tg1 of the polymer of the first layer and the glass transition temperature of the Tg3 of the polymer of said third layer are identical *or different*” does not have support since there is only support for the first layer and third layer having identical glass temperatures. Moreover, applicant does not have support for a device wherein the Tg3 is not only different from Tg1 but is also lower than Tg2. Nowhere in the specification does not applicant discuss the glass temperature of the additional, third layer in relation to the glass temperature of the second layer specifically. Therefore, the recitation of a “different” glass temperature in the third layer (Tg3) and its relationship to the glass temperature of the second layer (Tg2) is considered new matter.

B) Claims 33-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka et al (5,151,271) by itself or in view of Patnode et al (6,063,838).

Otsuka et al teaches a pressure sensitive adhering composite medicinal preparation to provide drug supply to the skin. The composite comprises **at least** two layers, namely **at least one** pressure-adhering macromolecular layer substance layer and polymer layer adjacent to the macromolecular substance layer. See abstract and column 2, lines 1-10.

The polymer layer contains a polymer or copolymer that has a glass transition temperature (Tg) of not lower than -50 degrees Celsius, preferably -45 to $+45$. See column 2, lines 20-25. This allows an increased degree of diffusion therein of the drug and adjuvant but also does not deteriorate the physical strength of the device. The polymer layer may be made of methacrylate polymers. See column 2, lines 55-65.

The macromolecular layer functions to secure the preparation to the skin, be compatible with the drug and adjuvant, and allow release of the drug. This layer has pressure sensitive polymers with a Tg of -70 to -10 degrees Celsius. This temperature allows increased shape holding property, does not cause skin irritation, and does not leave a residue when peeled off. See column 3, lines 1-25. The macromolecular layer is made of various monomers including methacrylic acid esters. Further, the macromolecular layer contains the drug and adjuvant.

The examples teach the use of two layers with different glass transition temperatures. For instance, example 1 teaches the macromolecular layer containing a drug with a Tg of -55 degrees C and the polymer layer with a Tg of -13 degrees C. The macromolecular layer is coated onto a release liner. The polymer layer is coated onto a polyester film. Note the polyester layer reads on the protective layer. Then the polymer film is pressed onto the macromolecular layer. Lastly, Otsuka teaches the use of various percutaneous drugs and the combination of two or more. See column 5, lines 15-51.

Although Otsuka suggests more than two polymer layers, the reference does not exemplify the third layer.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to look to the guidance of Otsuka and incorporate a third polymer containing layer. One would have been motivated to do so since Otsuka teaches that the composite should contain *at least* two layers and in particular *at least one* macromolecular layer; thus suggesting the incorporation of more than one macromolecular layer. Therefore, if a skilled artisan followed the suggestion provided by Otsuka and utilized two macromolecular layers, a skilled artisan would arrive at the instant invention wherein the invention would have a macromolecular layer corresponding to Tg1, a polymer layer corresponding to Tg2, and the second macromolecular layer corresponding to Tg3. Additionally, it should be noted that polymer layer (Tg2) has a higher temperature than the macromolecular layer as taught by Otsuka. Furthermore, the polymer layer would be sandwiched in between the two macromolecular layers instantly claimed since Otsuka teaches the macromolecular layer must be in contact and adjacent to the polymer layer (see column 2, lines 5-10). Therefore, if a skilled artisan utilized two macromolecular layers, the instant sandwich type configuration, wherein the polymer layer is in the middle, would be required to satisfy Otsuka's criteria that the macromolecular layer must be in contact with the polymer layer. Thus, the sandwich type configuration would enable both macromolecular layers to be in contact and adjacent to the polymer layer. Further, the claims recite that the temperature of the third layer (Tg3) may be the same or different than Tg1, an additional macromolecular layer with an identical Tg of the first macromolecular layer would still read on the claims.

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Patnode et al teach a blended pressure-sensitive adhesive which is formed from at least two polymeric materials with at least one is a pressure sensitive adhesive. Patnode teaches the transdermal art provides for several types of matrices and all devices basically contain a drug formulation, an adhesive to maintain contact with the patient's skin, a release liner to protect the device in storage, and a backing. See column 12, lines 60-66. Patnode teaches a embodiment wherein a multilaminate device contains a backing, an adhesive layer which contains the drug and excipients, a membrane that controls the rate at which the drug is diffused to the skin, a second adhesive layer, and a release layer. See column 13, lines 20-30 and Figure 15.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Otsuka et al and Patnode and utilize a third pressure sensitive layer. Patnode teaches a multilaminate device containing a backing, a pressure sensitive adhesive layer which contains the drug and excipients, a membrane that controls the rate at which the drug is diffused to the skin, a second pressure sensitive adhesive layer, and a release layer. Therefore one would have been motivated to look to Patnode to construct Otsuka's suggested device of at least two macromolecular pressure sensitive layers since Patnode demonstrates the state of the art wherein multilaminate transdermal devices are known to those skilled in the art.

C) Claims 33-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka et al (5,151,271) by itself or in view of Chien et al (5023084).

Otsuka et al teaches a pressure sensitive adhering composite medicinal preparation to provide drug supply to the skin. The composite comprises **at least** two layers, namely **at least**

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one pressure-adhering macromolecular layer substance layer and polymer layer adjacent to the macromolecular substance layer. See abstract and column 2, lines 1-10.

The polymer layer contains a polymer or copolymer that has a glass transition temperature (T_g) of not lower than -50 degrees Celsius, preferably -45 to +45. See column 2, lines 20-25. This allows an increased degree of diffusion therein of the drug and adjuvant but also does not deteriorate the physical strength of the device. The polymer layer may be made of methacrylate polymers. See column 2, lines 55-65.

The macromolecular layer functions to secure the preparation to the skin, be compatible with the drug and adjuvant, and allow release of the drug. This layer has pressure sensitive polymers with a T_g of -70 to -10 degrees Celsius. This temperature allows increased shape holding property, does not cause skin irritation, and does not leave a residue when peeled off. See column 3, lines 1-25. The macromolecular layer is made of various monomers including methacrylic acid esters. Further, the macromolecular layer contains the drug and adjuvant.

The examples teach the use of two layers with different glass transition temperatures. For instance, example 1 teaches the macromolecular layer containing a drug with a T_g of -55 degrees C and the polymer layer with a T_g of -13 degrees C. The macromolecular layer is coated onto a release liner. The polymer layer is coated onto a polyester film. Note the polyester layer reads on the protective layer. Then the polymer film is pressed onto the macromolecular layer. Lastly, Otsuka teaches the use of various percutaneous drugs and the combination of two or more. See column 5, lines 15-51.

Although Otsuka suggests more than two polymer layers, the reference does not exemplify the third layer.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to look to the guidance of Otsuka and incorporate a third polymer containing layer. One would have been motivated to do so since Otsuka teaches that the composite should contain *at least* two layers and in particular *at least one* macromolecular layer; thus suggesting the incorporation of more than one macromolecular layer. Therefore, if a skilled artisan followed the suggestion provided by Otsuka and utilized two macromolecular layers, a skilled artisan would arrive at the instant invention wherein the invention would have a macromolecular layer corresponding to Tg1, a polymer layer corresponding to Tg2, and the second macromolecular layer corresponding to Tg3. Additionally, it should be noted that polymer layer (Tg2) has a higher temperature than the macromolecular layer as taught by Otsuka. Furthermore, the polymer layer would be sandwiched in between the two macromolecular layers instantly claimed since Otsuka teaches the macromolecular layer must be in contact and adjacent to the polymer layer (see column 2, lines 5-10). Therefore, if a skilled artisan utilized two macromolecular layers, the instant sandwich type configuration, wherein the polymer layer is in the middle, would be required to satisfy Otsuka's criteria that the macromolecular layer must be in contact with the polymer layer. Thus, the sandwich type configuration would enable both macromolecular layers to be in contact and adjacent to the polymer layer. Further, the claims recite that the temperature of the third layer (Tg3) may be the same or different than Tg1, an additional macromolecular layer with an identical Tg of the first macromolecular layer would still read on the claims.

Chien et al disclose a transdermal system that provides a combination of drugs (estrogen and progestin) in a unit dosage. Example 8 teaches the transdermal contains a first adhesive layer that contains the estrogen and a pressure sensitive adhesive, a separating layer containing

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polyisobutylene polymer, and a third adhesive layer that contains the progesten and a pressure sensitive adhesive.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to look to the guidance of Otsuka et al and Chien et al and incorporate a third macromolecular pressure sensitive drug containing layer. One would have been motivated to do so since Otsuka teaches that the composite should contain *at least* two layers and teaches at least one macromolecular layer (which is an implicit teaching of more than one macromolecular layer); therefore suggesting the incorporation of more than one pressure sensitive macromolecular layer. Chien teaches a multilaminate device containing a first adhesive layer with a first drug, which correlates to Otsuka's macromolecular layer, a separating layer, which correlates to Otsuka's polymer layer, and another adhesive layer containing a second drug, which correlates to Otsuka's suggested second macromolecular layer. Therefore, if one desired to utilize different drugs for combination therapy as routinely done in the transdermal art and as evidenced by Chien, a skilled artisan would have been motivated to utilize another pressure sensitive adhesive macromolecular layer.

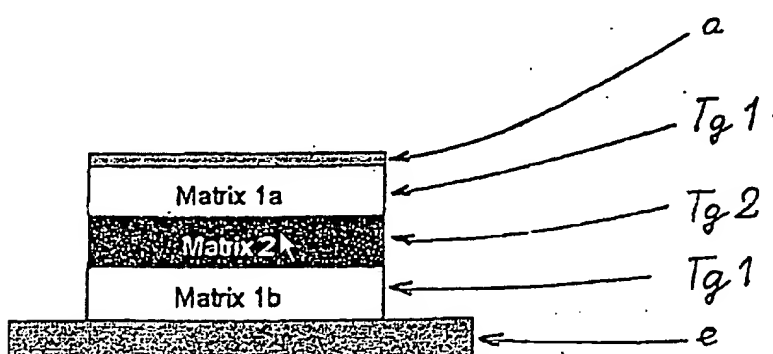
(10) Response to Argument

A) Claims 33-43 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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Appellant asserts that there is clear support for the limitation “or different” in the independent claims. Appellant argues that page 9, lines 1-2 and page 10, lines 1-5 provides support for different glass transition temperatures (Tg) since appellant discloses “at least two polymer layer-containing layers upon one another, with the layers containing polymers which different in their glass transition temperature.

Appellant’s arguments are not persuasive for the following reasons: The examiner notes page 9 and page 10 wherein the specification discloses that “the layers differ in their glass temperature” and acknowledges that applicant has support for two layers that have two different glass layers. However, the applicant does not have support for a layer “Tg3” wherein that layer has a different glass transition temperature from the other Tg1 and Tg2; this is clearly evidenced by the drawings. The drawing and page 10 clearly show a transdermal with three polymer layers but only *two* different glass transition temperature as noted by the terms “Tg1” and Tg2”.



The examiner notes that appellant has support for more than one layer, using the phrase “at least two” and the above drawing; however this is not enough to provide support for the third layer having a different Tg temperature. Nowhere in the specification does appellant discuss the

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Tg of the additional layers or moreover that it has a different glass transition temperature than the other layers. The only discussion of the additional layer and its Tg temperature is the above drawing wherein the Tg temperature is the same.

Assuming arguendo that appellant has support for a device wherein all three layers have different glass temperatures, as purportedly supported by the page 9 to 10 of the instant specification, appellant does not have support for the combined limitation that the third layer not only has a glass transition temperature (Tg3) that is different from the first layer's glass temperature (Tg1) but also has a lower glass transition temperature than the second layer (Tg2). The examiner points out that the specification does not disclose that if Tg3 is different it must have a lower temperature than Tg2. In fact, the glass temperature of the additional layers (instant third layer) is not discussed in appellant's specification. The only brief disclosure of the glass temperatures in relation to the other layers is on one line on page 10, line 18 wherein appellant states that Tg2 is greater than Tg1. Thus, the only disclosure is a device that has three layers wherein the first layer and the third layer have the same glass temperature and the first and third layer have a lower Tg than the second layer. However, this does not support that Tg2 is greater than Tg1 and Tg3 and Tg3 has a different glass transition temperature than Tg1. Summarily, the vague teaching, "at least two polymer layer-containing layers upon one another, with the layers containing polymers which different in their glass transition temperature", in which appellant attempts to derive support does not extend support to the specific Tg temperature attributed to the additional, third layer Tg3. It is once again respectfully submitted and emphasized that if arguendo appellant does have support for all three layers having different glass transition temperatures, then the specific limitation that Tg2 is greater than Tg3 is not supported.

Appellant argues that nowhere in the specification does appellant state that it is critical for Tg1 and Tg3 to be identical. Appellant argues that for “practical reasons” it is “easier and more inexpensive” to produce a device wherein all the layers have different glass temperatures.

Firstly, as discussed above, the specification does not discuss the Tg of the additional, third layer (Tg3) generally or in relation to Tg2 or Tg1 when it has a different Tg than the first and second layer. Thus, although the examiner notes that the specification does not state that that it is critical for Tg1 and Tg3 are identical, the lack of disclosure or discussion of the glass temperature of the additional, third layer does not make the inverse true, i.e. that it is critical that Tg1 and Tg3 are different. Secondly, the examiner points out that nowhere in the instant specification does appellant discuss that it is “easier” for the invention to have all three layers with a different Tg temperature as presently argued by appellant. Therefore, the examiner respectfully points out that appellant cannot use this argument to argue the new matter rejection.

B) Claims 33-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka et al (5,151,271) by itself or in view of Patnode et al (6,063,838).

Appellant argues that it is not clear that Otsuka teaches more than two layers. Appellant argues that Otsuka does not disclose an arrangement as set forth in the instant claims. It is argued that Otsuka does not teach that it is essential that the polymer layer has a higher temperature than the molecular layer. Appellant argues that the temperature ranges of the polymer layer and macromolecular layer taught by Otsuka overlap. Applicant argues that Otsuka does not teach sandwiching the polymer-containing layer having a high Tg (Tg2) in between Tg1 and Tg3. Appellant argues that this vague teaching would not render the instant invention obvious. Applicant argues that Patnode does not make up for the deficiencies of Otsuka.

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Appellant's arguments are not persuasive for the following reasons: Firstly, the examiner notes that appellant criticizes Otsuka's use of the phrase "at least two layers" as a "vague teaching" and that is unclear if this is in fact a suggestion of more than two polymers (appellant's argument on page 20 of the appeal brief). However, it is noted that appellant also uses the same purportedly "vague teaching" on page 9 and 10 to derive support for the instant claims comprising more than two layers. Further, page 18 of appellant's brief argues "The expression 'at least two layers' implies that the laminate constituting the therapeutic system may comprise, for instance, three layers." Thus, with regard to the prior art, appellant attempts to argue that this is a vague teaching and "at least two" does not mean more than two layers, whereas with regard to 112, first paragraph new matter rejection, appellant attempts to argue that "at least two" is ample disclosure of more than two layers. The examiner agrees with appellant's statement on page 18 of the appeal brief that "at least two" is implicit for more than two layers, for instance, a device that has three layers.

With regard to Otsuka, the examiner notes Otsuka disclosure on column 2, lines 4-15 and also notes that appellant only highlights certain portion of this disclosure to conform to appellant's arguments. On page 22 of the appeal brief, appellant highlights "a layer of a macro-molecular substance having pressure-sensitive adhesiveness at ordinary temperatures and a polymer layer". Appellant argues that the "at least two layers" only refers to one macromolecular layer and one polymer layer. Firstly, the phrase "at least two" unambiguously means the system may have more than two layers. Secondly, appellant failed to highlight the portion wherein Otsuka teaches:

"a composition preparation characterized comprises at least two layers, namely a layer of a macro-molecular substance having pressure-sensitive adhesiveness at ordinary

temperatures and a polymer layer adjacent to said macromolecular substance layer, that **at least one of the macro-molecular substance layer** and polymer layer at least contains a percutaneously absorbable drug and the other at least contains an adjuvant capable of increasing percutaneous drug absorption, and that the drug and adjuvant respectively can migrate into the adjacent macromolecular substance layer and polymer layer.

Therefore, it is the examiner's position that Otsuka teaches that the system can contain more than one macromolecular layer. Moreover, assuming *arguendo* that the above disclosure means more than one macromolecular layer *and* more than one polymer layer, the examiner points out that the instant claims have comprising language; thus it is respectfully submitted that system does not exclude additional layers. The examiner will address below both interpretations wherein either interpretation will render the instant device obvious.

The following teachings of Otsuka are highlighted and pertinent to the examiner's arguments:

1) Otsuka teaches on column 3, lines 1-25 that the macromolecular contains the drug (see claim 2 of US '271) and functions to secure the preparation to the skin and comprises pressure sensitive polymers with a Tg of -70 to -10 degrees Celsius, the most preferable range is -55 to -18 degrees Celsius. This temperature allows increased shape holding property, does not cause skin irritation, and does not leave a residue when peeled off.

2) Otsuka teaches on column 2, lines 20-65, the polymer layer contains the adjuvant and comprises a polymer or copolymer that has a glass transition temperature (Tg) of not lower than -50 degrees Celsius, preferably -45 to +45. This allows an increased degree of diffusion therein of the drug and adjuvant but also does not deteriorate the physical strength of the device. Otsuka teaches on column 1, lines 48-55 that the function of the polymer layer is to prevent drug

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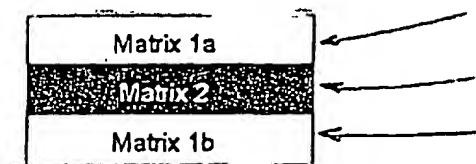
crystallization in the macromolecular substance layer and provide an adjuvant to increase drug absorption.

3) Otsuka teaches the criticality of the polymer layer and macromolecular layer to be in contact with each other.

4) The examiner points to the examples teach the use of two layers with different glass transition temperatures. For instance, example 1 teaches the macromolecular layer containing a drug with a Tg of -55 degrees C and the polymer layer with a Tg of -13 degrees C. The macromolecular layer is coated onto a release liner. Note that a Tg of *negative* 13 (-13) is higher than a Tg of *negative* 55 (-55).

It should be noted that both layers contain polymers, however in the following discussion the examiner distinguishes the layers by using the prior art term, “polymer layer” (contains polymer and adjuvant) and “macromolecular layer” (contains polymer and drug).

The examiner’s interpretation that Otsuka teaches more than one macromolecular layer will be addressed first. It is the examiner’s position that a skilled artisan would arrive at the instant invention by looking at example 1 in conjunction with Otsuka’s suggestion that the device may contain more than one macromolecular layer and that the macromolecular layer *must be* in contact and adjacent to the polymer layer. If a skilled artisan utilized two macromolecular layers as suggested, the only configuration that would work is sandwiching the polymer layer between the two macromolecular layers which enables *both* macromolecular layers to be in contact and adjacent to the polymer layer. Hence, providing the following device”



Matrix 1a: macromolecular layer with -55

Matrix 2: polymer layer with -13

Matrix 1b: macromolecular layer with -55

This satisfies the limitation that matrix 2 has a higher glass temperature than matrix 1a and 1b *and* matrix 1a and 1b have identical glass temperatures. Thus, if a skilled artisan desired to formulate a transdermal that provided combination therapy, one would have been motivated to utilize an additional macromolecular layer with a different drug. Furthermore, if two drugs are incompatible with each other, utilizing two separate macromolecular layers would be advantageous.

Assuming *arguendo* that “at least one of the macromolecular layer” does not necessarily suggest specifically suggest more than one macromolecular layers, the examiner discusses the other possible configurations. There are three possible devices that may be derived from the suggestion that the device comprises “at least two layers, at least one of the macromolecular substance layer and polymer layer.”

The first possible configuration is a device that contains two macromolecular layers and a polymer layer (discussed above).

The second possible configuration is a device that can contains two polymer layers and one macromolecular layer. *However*, the examiner points out that a skilled artisan would not

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choose this configuration since Otsuka teaches on column 1, lines 48-55 that the function of the polymer layer is “to prevent drug crystallization in the macromolecular substance layer and provide an adjuvant to increase drug absorption without increasing the macromolecular substance layer thickness or without necessity of an increased drug concentration.” Thus, the incorporation of two polymer layers would be unnecessary if the device only contained *one* macromolecular layer.

The third possible configuration is a device that contains two macromolecular layers and two polymers layers. The examiner points out that this configuration would still render the instant invention. Firstly, the instant claims have “comprising” claim language and thus does not exclude other layers. Thus, again following the criteria that the polymer layer and macromolecular must be in contact with each other the following device is rendered:

Matrix 1a: macromolecular layer with -55

Matrix 2a: polymer layer with -13

Matrix 1b: macromolecular layer with -55

Matrix 2a: polymer layer with -13

This satisfies the limitation that matrix 2a has a higher glass temperature than matrix 1a and 1b wherein matrix 1a and 1b have identical glass temperatures.

With regard to appellant’s argument that the temperature ranges of the polymer layer and macromolecular layer taught by Otsuka overlap, the examiner points out that Otsuka teaches that the macromolecular preferably comprises pressure sensitive polymers preferably with a Tg of –55 to –18 degrees Celsius and the polymer layer comprises a polymer or copolymer that has a glass transition temperature (Tg) of not lower than –50 degrees Celsius, preferably –45 to +45.

Appellant argues that Otsuka teaches the polymer layer must have a film or sheet on one side; thus this teaching goes against the examiner's "sandwich configuration" since an impermeable layer would separate the polymer and macromolecular layer. Appellant argues that it is illogical to have a pressure sensitive layer (macromolecular layer) that does not contact the skin, which occurs when there are two macromolecular layers in a sandwich configuration.

Firstly, the examiner points out that the teaching of a film or sheet next to the polymer layer is a *preferred* embodiment for the exemplified two-layer device and the term "preferred" does not denote criticality to this embodiment. The examiner respectfully submits that disclosed examples and preferred embodiments do not constitute a teaching away from the broader disclosure or nonpreferred embodiment". In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). Further, the examiner points out that this film/sheet taught by Otsuka is a backing layer, which supports and protects the transdermal system (it is conventionally applied to the exposed polymer containing layer surface that is not contacting the skin to prevent the exposure of the transdermal system to the environment). Backing layers are routinely used and known to those skilled in the transdermal art. Thus, a skilled artisan would readily ascertain that if the system contained more than two layers, this backing layer would be applied to one of the exposed surfaces of the final transdermal system and not as a middle layer in the system since this would negate the purpose of the backing layer. Again this is conventional knowledge, which is evidenced by the secondary reference, Patnode et al. On column 13, lines 15-20, Patnode teaches a multi-laminate device comprising a backing, a pressure sensitive adhesive layer containing a drug, a membrane layer that controls the rate at which the drug is diffused to the skin (sandwiched between the two adhesive layers), a second pressure sensitive adhesive layer,

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and a release layer. Note that Patnode's two pressure sensitive adhesive layer corresponds to Otsuka's pressure sensitive macromolecular layer and Patnode's membrane layer corresponds to Otsuka's polymer layer. Patnode clearly applies the backing layer to the drug containing polymer layer.

With regard to appellant's argument that it is illogical to have a pressure sensitive drug containing layers (macromolecular layer), the examiner points out that the macromolecular layer functions to not only adhere the device to the skin but the layer acts as a reservoir for the drug. Thus, if a skilled artisan desired to provide combination therapy wherein two incompatible drugs need to be separated, one would have been motivated to have two pressure sensitive layers (macromolecular layers). This is conventional in the transdermal art and it is *not* "illogical" as evidenced by Patnode et al. Again the examiner points out that Patnode teaches a multi-laminate device comprising a backing, a pressure sensitive adhesive layer containing a drug, a membrane layer that controls the rate at which the drug is diffused to the skin (sandwiched between the two adhesive layers), a second pressure sensitive adhesive layer, and a release layer. Note that one of the pressure sensitive drug containing layers (the one adjacent to the backing layer) does not contact the skin. The use of a pressure sensitive polymer in a layer, does not necessarily restrict the layer's function, i.e. that the layer can only be used on the skin-contacting surface, as evidenced by Patnode.

Appellant argues if the device contained two macromolecular layers, then the second macromolecular layer would be on top of the first macromolecular layer and since the first macromolecular layer and polymer layer are in contact, Otsuka's criteria would still be satisfied.

Otsuka teaches on column 1, lines 48-55 that the function of the polymer layer is “to prevent drug crystallization in the macromolecular substance layer and provide an adjuvant to increase drug absorption without increasing the macromolecular substance layer thickness or without necessity of an increased drug concentration.” Thus, if the device contained two macromolecular layers, which are stacked upon one another as asserted by appellant, then the second macromolecular layer would not have the advantage enhanced drug absorption provided by the adjuvant in the polymer layer or prevention of drug crystallization. The examiner points out that Otsuka’s inventive concept is not that if the device contains two macromolecular layers, only one of the macromolecular layer should contact the polymer layer, as implied by appellant. The inventive concept is that the macromolecular layer must be in contact with the polymer layer in order to achieve the benefit of increased drug absorption and prevention of drug crystallization. Thus, it is implicit that if one utilized more than one macromolecular layer, it must follow the same criteria to achieve the benefits of the polymer layer.

Appellant argues that the combination of Otsuka and Patnode is improper since Otsuka’s polymer layer is not equivalent to Patnode’s membrane layer. Appellant argues Otsuka’s polymer layer does not function as a rate controlling layer and only functions for drug diffusion.

The examiner points to column 2, lines 5-60 wherein Otsuka discusses the function of the polymer layer:

When the Tg is not lower than -50.degree. C., the polymer allows an increased degree of diffusion therein of the drug and adjuvant, hence an increased extent of migration of the drug and adjuvant, but is not deteriorated in physical strength by the incorporation of adjuvant, drug and so on; the polymer is excellent in flexibility and scarcely irritates the skin and therefore is preferred

The examiner points out that although Otsuka does not use the term “rate controlling” layer, the polymer layer does function to control the rate of diffusion of the drug since rate controlling is defined as the ability to increase or decrease the rate of release. Therefore, the ability of the polymer layer to increase drug diffusion is in essence the ability to control the drug release rate. Thus, if a skilled desired to formulate a device following Otsuka’s suggestion, one would look at Patnode’s disclosure of a multi-laminate device.

With regard to appellant’s argument “The Applicant believes that this demonstrates that Otsuka,et al. had not seriously considered the possibility of employing more than one macromolecular substance layer”, it is pointed out exemplification of one embodiment is not a teaching away from the broader disclosure as set forth in *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). Moreover, the criteria for obviousness is not “seriously consider[ing]” the use of more than one macromolecular layer. One cannot assume that an embodiment is not seriously contemplated by the mere fact that the embodiment is not exemplified. However, assuming arguendo that a skilled artisan would not know how to make the multi-laminate device since Otsuka does not exemplify it, the examiner points out that Patnode cures this deficiency. Patnode clearly teaches incorporating more than one drug layer in a transdermal device along with the placement of the backing layer, the release layer, and rate controlling polymer layer.

Lastly, appellant argues that Otsuka does not teach it is essential that the polymer layer have a higher temperature than the molecular layer.

Firstly, the examiner points out that the instant claims are product claims and not a methodology of reducing cold flow; thus it is the examiner’s position that the prior art’s utilization of different glass transition temperatures is sufficient. Further, cold flow is defined as

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the flowing of material during storage. The examiner points out that Otsuka notes the problems associated with prior art devices and attempts to avoid these problems. Otsuka notes in prior art devices “the macromolecular substance often oozes out of the supporting member” (this oozing is cold flow phenomenon) on column 1, lines 43-44. On page 9 of the instant specification, appellant discloses, “The layer with the higher glass transition temperature leads to an improvement of the cohesion of the entire system”. Thus, it is clear that there is no criticality in the instantly claimed configuration to achieve reduction in cold flow. As taught by appellant, reduction of cold flow merely requires one layer to have a higher glass transition temperature. Otsuka teaches the use of layers having different glass temperatures wherein one layer has a higher T_g temperature than the other.

C) Claims 33-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otsuka et al (5,151,271) by itself or in view of Chien et al (5023084).

Appellant’s arguments regarding Otsuka et al are the same as discussed above and thus the examiner incorporates the above arguments herein. Otsuka will be briefly discussed below.

It is the examiner’s position that by following Otsuka’s suggestion of more than one macromolecular layer and the criteria that the macromolecular layer must be in contact with the polymer layer, a skilled artisan would arrive at the instant invention. Summarily, Otsuka teaches “at least one macro-molecular substance layer”, which is a suggestion that more than one macromolecular layer may be used. Additionally, Otsuka teaches the macromolecular layer and polymer layer must be in contact to each other, which is a critical feature to achieve the benefits of preventing drug crystallization and achieving increased drug absorption. Therefore, if a skilled artisan utilized two macromolecular layers as suggested by Otsuka, the only configuration that

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would work is sandwiching the polymer layer between the two macromolecular layers which enables both macromolecular layers to be in contact and adjacent to the polymer layer. The motivation to utilize two drug-containing layers is to provide combination therapy. The examiner relies on the secondary reference, Chien et al, to further provide motivation and demonstrate the conventional skill in the art. Chien et al teach a transdermal system that provides a combination therapy of drugs estrogen and progestin. The transdermal contains a first adhesive layer that contains the estrogen and a pressure sensitive adhesive, a separating layer containing polyisobutylene polymer, and a third adhesive layer that contains the progestin and a pressure sensitive adhesive. Thus, Chien demonstrate that at the time the invention was made, it was routine and known to incorporate more than one drug layer. Assuming arguendo that a skilled artisan would not know how to formulate the multi-laminate device as suggested by Otsuka since Otsuka does not exemplify the use of more than one macromolecular layer, the examiner points out that Chien cures this deficiency.

Appellant argues that Otsuka teaches the use of a combination of drugs within one layer; thus a skilled artisan would provide combination therapy by combining two drugs in one macromolecular layer.

Otsuka teaches on column 5, lines 51-52, "As necessary, these drugs may be used in combination of two or more of them". However, the examiner respectfully points out that this is not the same as appellant's assertion that Otsuka teaches the device, "may contain two or more drug substances *within one layer*". It is the examiner's position that Otsuka merely suggests the use of combination therapy but does not restrict the combination of drugs to one layer. Thus, it is respectfully submitted that Otsuka's suggestion of more than one macromolecular and the

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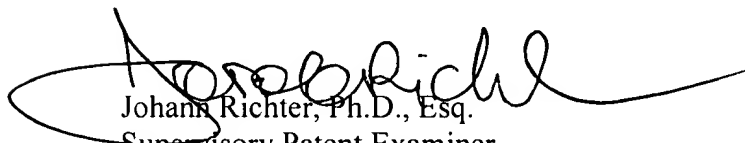
suggestion of utilization of combination therapy in conjunction with Chien renders the instant invention prima facie obvious.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

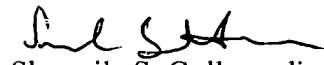
For the above reasons, it is believed that the rejections should be sustained.

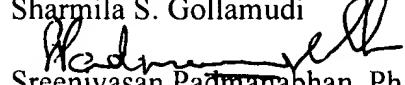
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